TEXTILE READER'S GUIDE

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Abstracts

FIBERS A

Natural Fibers A 1

Color shading and grading

Warren B. Reese. *Textile Industries 116*, 87-90 (August, 1952).

To assure the detection and correction of production color variations before they get beyond control, color-corrected illumination should be employed at the key textile perching and inspection operations. This important color inspection can be carried out most efficiently and consistently under artificial daylight illumination. Article describes inspection equipment and procedures at Lane Cotton Mills in New Orleans, Louisiana.

Cotton's minor constituents

Carroll L. Hoffpauir. *Textile Industries 116*, 109-113 (August, 1952).

If the manufacturing operations for producing finished goods from cotton are to be improved, a better understanding of the nature of the fiber's minor constituents is essential. The findings presented in this article, although fundamental in nature, have practical significance.

"Dangerous trend" in ginning raises mill costs, lowers quality

Walter Regnery. *Textile World 102*, 133, 196, 198 (October, 1952).

Mill tests of ginning procedures show that today's gins are damaging cotton in their efforts to raise the grade and price. Over-cleaning and over-drying by gins (1) increase ends down 39 to 49, (2) increase neps in card web 25%, (3) increase neps in cloth 16½%, (4) increase cloth costs at least 4.39 cents per pound. These facts were borne out in a series of tests, run in 17 mills under the guidance of the National Cotton Council and the American Cotton Manufacturers Institute.

Problems in the dyeing of wool with chrome blacks

G. H. Lister. *Textile Recorder 70*, 71-72 (September, 1952).

Certain technical difficulties frequently arise in the dyeing of loose wool and slubbing with chrome colors. In this article, our contributor

discusses the causes of these difficulties and suggests means by which they may be overcome.

Artificial Fibers A 2

Apparatus for producing spun yarns from continuous filaments

Rudolf Wildboltz (Actiengesellschaft Joh. Jacob Rieter and Cie), U. S. P. 2,611,931 (September 30, 1952).

Apparatus for producing spun yarns from continuous filaments comprises a device for spreading the sliver, tearing rollers, a condenser, a drawing mechanism for receiving the fibers comprising two pairs of rollers and means for winding the yarn on a package.

Assessing the structural irregularity of man-made fibers

A. B. Pakshver, E. K. Mankash, and A. J. Kukonkova. *Z. Textil Industrie 54,* 215-16 (1952); *British Cotton Ind. Res. Assoc. 32,* 660 (September 15, 1952).

When man-made fibers, such as rayon and polyamide fibers, are immersed in a suitably active liquid, or exposed to heat, the fiber tends to change in length owing to the removal of stresses on the strained molecules. Advantage is taken of this property to ascertain the probable fine structure of a fiber and its behavior during dyeing and finishing (fixing, etc.) processes. Water, or a 4% sodium hydroxide solution, is used for viscose rayon, while a 2-4% pheno solution is employed for polyamide fibers in the cold test. The results of the tabulated data are briefly discussed.

Degradation of nylon on exposure to light

Anon. *Textile Age 16,* 33-35 (September 1952).

Nylon yarn, like other textile fibers, is subject to degradation upon exposure to light. Data from sunlight exposure tests indicate that bright nylon yarns have essentially the same sunlight durability as cotton, linen, and bright textile rayons of the same denier, better sunlight durability than silk and dull textile rayon, and poorer sunlight durability than Orlon acrylic fiber. Article describes a number of tests and the data obtained from them.

Fabrics from fiber blends

Anon. *Textile Recorder 70,* 84, 85, 86 (September, 1952).

A discussion of papers relating to blending of fibers for specific end uses. Mr. Graeme G. Whytlaw, for American Viscose Corporation, states that there are many factors, which must receive consideration in blending. Mr. R. S. Greenwood, of Courtaulds, Ltd., outlined the three main reasons why textile fibers are blended as being 1. for appearance, decoration, or effect, 2. for performance, whether in spinning, weaving, knitting, of the fabric in use, and 3. price and states that viscose rayon was used for all these purposes according to circumstances. A paper by Mr. W. A. Corry, of the research division of the United States Air Force presented data on a wear test of summer uniforms made of blends of wool and polyester fiber. Another paper by Mr. J. J. Press of the Research and Development Division, Clothing Supply Office, United States Naval Supply Activities, gave data on the investigation of possibilities of developing suitable Navy uniform fabrics, using wool in blends with such fibers as viscose, cotton, nylon, and acetate.

Fibers

C. S. Grove, Jr., Jos. L. Vohonik and Robert S. Casey. *Ind. and Eng. Chemistry 44,* 2318-24 (1952).

A literature survey is presented on the use of fibers with respect to construction material. 179 references.

High tenacity regenerated protein fiber

F. Happey and R. L. Wormell (Courtaulds Ltd.); *Brit. Rayon and Silk J. 29,* 76 (September, 1952); B. P. 673,676 (June 11, 1952).

Protein fibres of relatively high tensile strength are produced by adding to the alkaline spinning solution prepared from an animal or vegetable protein a denaturing agent whose effect is to facilitate high-stretching of the fibers subsequently formed. After the denaturant is added it is necessary to allow this to stand for several hours at room temperature so that the cystine linkages in the protein molecules may be suitably broken and allow the high degree of stretching required to align these long chain molecules more parallel to each other in the fully formed fibers.

If you want to change over to spun synthetics

Charles W. Kay. *Textile World 102,* 73, 302-311 (September, 1952).

During recent years the trend in textile manufacturing has been toward fabrics partly or completely composed of spun-synthetic fibers. Many mills have converted their cotton operations to the use of staple-synthetic fibers, and many other mills are now thinking of converting in order to take advantage of the popular demand for these

fabrics. This article gives some idea of what is involved in the conversation. Some of the points to be watched closely in changing over are better cleaning, guarding against mixing of fibers, closely controlled humidification, and the necessary changes to equipment to accommodate the longer staple fibers.

Method for processing continuously spun yarns

Kenneth M. McLellan and Richard W. Stanley (Industrial Rayon Corp.); U. S. P. 2,611,924 (September 30, 1952).

Method and apparatus for processing continuspun synthetic yarns comprises advancing the yarn over thread-advancing reels which form a path that is vertically inclined toward an operator facing said reels and then passing the processed yarn overhead to collecting means.

Outstanding and deficient properties of some common textile fiber materials

W. F. Luther. *Rayon & Synthetic Textiles 33,* 540 (February, 1952).

see front section of October issue.

Spinning synthetic fibers

Howard M. Hoxie (The Chemstrand Corp.); U. S. P. 2,611,929 (September 30, 1952).

Methods of forming fibers comprises extruding material, such as acrylonitrile polymers, into a liquid precipitant, washing the yarn with the precipitant, delivering the washing liquid to the bath to maintain the precipitant-solvent proportion constant.

The development of rayon

Anon. *Textile Recorder 70,* 72 (September, 1952).

A summary of an address before a meeting of the Manchester Statistical Society, by Mr. Dearnaley of the British Rayon and Synthetic Fibers Federation. Mr. Dearnaley says that rayon is neither artificial nor imitation, but a man-made fiber in its own right. The industry has now so perfected its product and reduced its costs so that goods of high quality are in the reach of all.

To handle synthetics, train your employees

Richard B. Pressley, Ass't. Ed., *Textile World 102,* 74, 75; 290-293 (September, 1952).

Every mill that is producing synthetic yarns is paying for a training program. The mill that is not training is paying for the program just the same—with damaged yarn from the preparation processes, with second-quality cloth on the loom, and with high accident rates. Today, each plant employee should be trained in (1) Safe work methods, (2) Quicker and easier ways to do the work, (3) Ways to set the machines for better products.

Performance standards for rayon, acetate, mixed fibers

Staff. *Textile Industries 116,* 98 (August, 1952).

The American Standards Association has approved 51 performance standards for rayon, acetate and mixed fibers in various end uses. The terms rayon, acetate and mixed fibers are defined. A labeling plan in which each garment is labeled "washable," "hand washable" and "drycleanable" has also been worked out.

Water-soluble filaments and films from methyl cellulose ether

E. B. Johnson and F. J. Webster (British Celanese Ltd.); *British Silk and Rayon J. 29,* 74 (September, 1952); B. P. 673,654 (June 11, 1952).

Water-soluble filaments of methyl cellulose ether are made by extruding a spinning solution into a coagulating bath which contains an organic liquid capable of dissolving completely the water-organic solvent mixture used in the spinning solution. It is found most satisfactory to use a 60 to 80% aqueious solution of acetic acid in preparing the spinning solution and acetone for the coagulation bath. The freshly formed filaments should be immediately stretched so as to raise their usual dry tenacity of 1.0 g. per denier to 1.25 g.

Where are synthetics going?

George M. Moisson, Ass't Ed., *Textile World 102:9,* 71-72; 300-301 (September, 1952).

The technology of man-made fiber manufacturing and finishing is one of the fastest-growing and more highly specialized fields in industry today. Rayon—already competitive with cotton in price, in product applications, and in technology—is still faced with the task of finding a way to increase low wet strength, and to improve fiber stability. Several approaches to the solution of this problem are mentioned. Information on the production and consumption of acetate, nylon, dacron, regenerated protein fibers of both vegetable and animal origin, the acrylic fibers, and orlon is given in this article.

YARN PRODUCTION B

Fiber Preparation B 1

Apparatus for the liquid treatment of yarn

Edgar D. Bolinger and Robert G. Berner (Deering Milliken Res. Trust); U. S. P. 2,611,172 (September 23, 1952).

Apparatus for the liquid treatment of yarn which comprises means for assembling ends of yarn in sheet form, a dip trough which holds the treating liquid, squeeze rolls and drawing rolls, and means for separating the ends.

Continuous scouring of woolen, worsteds, and blended fabrics by modern methods

F. C. Ames. *Textile Age 16,* 44-52 (September, 1952).

In recent years, due to the higher labor, raw material and machinery cost, it has become increasingly important to the mill man to improve the scouring process. In some cases, it has been possible to make changes to existing equipment as well as changes in procedure so that the end result was substantially better. The following eight points stand out as being the most desirable for improving the scouring processes: (1) Labor saving, (2) Steam and water saving, (3) Soap saving, (4) Ease of operation, (5) Thorough, even treatment of each yard of fabric, (6) Flexibility of equipment as to speed and types and weights of fabrics that can be processed, (7) Tensionless operation, (8) Continuous operation where production warrants. This article discusses the operation of the LAXLOOP Continuous Washer, designed and built by Riggs & Lombard, Inc., of Lowell, Mass.

Carding and Combing B 2

Controlling card roving weights

Anon. *Textile Age 16:9,* 18-19 (September, 1952).

A new carding device, the Bigelow Card Compensator, provides a low cost method of improving uniformity of sliver across width of the card. The compensator can be adapted to cards using any type of broadband feed and adjusted to fit requirements of the individual operation. Tests of operations of this device show that it reduces roving weight variations by approximately 50%.

Handling synthetics on the woolen system

Gustav Zellnik. *Textile World 102,* 79-80 (September, 1952).

Proper selection of synthetic fibers with regard to denier, staple length, and strength is the key to successful processing on the woolen system. A small difference in fiber diameters won't give any trouble and is sometimes desirable, but major differences should be avoided. Among the points enumerated are that emulsions must be applied with care, varying staple length and denier gives good results, card speeds and settings must be changed for optimum performance, and the drawing coefficient must be watched.

Handling synthetics on the worsted system

Francois E. Cleyn. *Textile World 102,* 79 (September, 1952).

The processing of synthetics on the worsted system has become routine and a few principles now appear outstanding. Among the points given are that synthetic blends are at their best when the minimum twist is used, that most synthetic fibers can be top dyed, that recombing is important and sometimes indispensable in wool-and-synthetic blends, and that the card and the comb are still the two best mixing machines available.

Processing synthetics on the woolen system

Robert A. Smith. *Textile World 102,* 80-83, 293-300 (September, 1952).

This article enumerates several things which must be watched in the processing of synthetics on the woolen system. Picking should be light, fiber lubricants must be selected carefully, and spinning drafts must be selected according to the fiber in use. A number of card settings and pointers on carding are given in the article.

Two new wool blending systems

Harmon B. Riehl. *Textile Industries 116,* 114-116 (August, 1952).

During recent years, the increase in the cost of labor and the need for more uniform laying, oiling, and picking of wool blends have accelerated the development of new blending systems. A properly designed system should provide (1) the preparation of the baled fibers to a size suitable for proper blending, (2) the proportioning of the various components of the blend, (3) the actual assembling of the components in layers and the breakdown across the face of the layered components in either a continuous or an intermittent flow, (4) the handling of the blend through automatic relay operation in a manner that will hold the integrity of the blend and permit the complete batch to come to rest to assure moisture equilibrium prior to final processing, (5) application of

emulsion evenly and in proper amounts, (6) the economical handling of the finished blend. Two such systems are described in this article.

What happens when you speed up cotton cards?

P. M. Thomas. *Textile World 102,* 94-97 (October, 1952).

Most carders know that slow card production and high quality go hand in hand. A USDA study at Clemson, S. C., and College Station, Texas, substantiates this opinion, but it also shows how much fast card production increases neps, decreases yarn strengths, lowers yarn appearance, and decreases card waste. Article gives complete data with tables and graphs.

Worsted mill analzes card-grinding methods

Michael J. Koroskys. *Textile World 102,* 118-119, 204-214 (October, 1952).

A large New England worsted mill which decided that something should be done about card-grinding, attacked the problem with this formula: (1) describe all parts of the job, (2) question every detail, (3) suggest improvements. Some of the suggested improvements required no major decisions and were made immediately. Improvements that called for money to be spent were analyzed carefully and made if a 5-year payoff could be shown. The article gives the principles of the study of worsted card grinding which can be applied to almost any job in the mill.

Drafting and Roving B 3

Applying pneumastop to roving frames

Anon. *Textile Age 16:9,* 20-24 (September, 1952).

A new stop motion for roving frames known as Pheumastop combines the Pheumafil system with an electric eye and reports made on the basis of initial installations indicate it may have a revolutionary effect on roving frame operating methods. When breakage occurs at any point, from the nip of the front roll to the presser foot, the broken end is picked up immediately by air suction and pneumatically conveyed to the collector unit. Just before the material from the broken end enters the collector unit, it passes through a series of light beams produced by a photo-electric scanning device. The passage of the material through the beams is detected instantly, causing the frame to stop automatically and a signal light to flash intermittently.

Card sliver variation can be reduced

Henry Paul. *Textile Industries 116:8,* 96-98 (August, 1952).

An important prerequisite in making even card sliver is a uniform pick lap, without which it is impossible to make uniform sliver, no matter how perfectly the cards are set, or whether the clothing, lickers-in, and bearings are in perfect condition. Assuming that the picker laps are within standard tolerances, there are several important considerations which may help control the uniformity of card sliver. Some of these are card feed rolls, clothing, screens and bearings, humidity and tensions in the operation.

Inclined roll stands highlight Whitin G10D roving frame

Anon. *Textile World 102,* 171-172 (November, 1952).

See front section.

Spinning B 4

A new device for the cleaning of spinning frames

Anon. *Textile Recorder 60,* 101 (October, 1952).

A machine for cleaning the top rolls of a spinning frame while it is running has been developed by the Farnsworth Engineering Co. of Farnsworth, England. The machine consists of a tapered spindle rotating at about 3,000 r.p.m. This spindle picks up the fly, lint, etc., on the top rolls and eliminates one cause of poor quality yarn by removing the source of oily waste and dust which could contaminate the yarn. The fibers can be removed from the spindle by hand with perfect safety. The machine is fully mobile and self contained and power for the fractional horsepower motor is supplied from batteries contained in a trolley.

Drawing mechanism for spinning machines

Wilhelm Stahlecker, in France, U. S. P. 2, 601, 705 (July 1, 1952).

In a drawing mechanism for spinning machines having clearer rollers and saddle-loaded pairs of upper rollers located in the forward drawing field and connected by a shaft extending between the pairs of rollers, in combination, and elongated saddle member unit having a U-shaped cross section so that the unit comprises a pair of depending side portions forming a space therebetween and having upper edges connected by a top portion of the unit, the side portions having lower edges distant from the upper edges and

having parts thereof including the lower edges cut away so as to form space recessed in one side portion located opposite to spaced recesses in the other side portion, the recesses extending upwardly from the lower edges, whereby the shafts connecting the upper rollers may be located in the recesses of the saddle member unit, and the saddle member unit having parts of the top portion bent upwardly therefrom so as to form holders for clearer rollers; connecting means fixedly mounted on the saddle member unit for connecting the load for the upper rollers to the saddle member unit, the last-mentioned means being immovably mounted on the saddle member unit; and means for connecting the saddle member unit to the drawing mechanism in such a way that the saddle member may be removed from the drawing mechanism and replaced by a saddle member unit of a different size than the first mentioned saddle member unit.

Factors affecting the translation of certain mechanical properties of cordage fibers into cordage yarns

M. M. Platt, W. G. Klein and W. J. Hamburger. *Textile Res. J. 22,* 641-67 (1952).

This report is concerned with the study of the mechanical properties of cordage yarns. The relationship between fiber properties and yarn performance is expressed mathematically. The mathematical formulas representing the mechanical behavior of cordage yarns are shown to be useful by a comparison between theoretically calculated and experimentally obtained data. The results of the mathematical analysis are shown graphically over a range of fiber properties in excess of those evident by cordage fibers. Thus if the assumptions made hold for all textile fibers the behavior of other fibers than those normally used for cordage can be predicted for the case of yarns of cordage type.

New variable speed drive facilitates frame speed changes

Anon. *Textile World 102,* 155 (October, 1952).

A new spinning frame drive incorporating the Dodge "Taperlock" principle, has been developed and is now available from Dodge Mfg. Co., Mishawaka, Ind. The variable-sheave assembly loks on the motor shaft as a unit with the turn of a screw. Pitch diameter is changed easily by adjusting a screw located at either end of the sheave.

Multiple twisting device

B. P. 679,384, September 17, 1952. T. M. M. (Research) Limited.

A multiple-twisting device for yarns comprises a hollow rotating spindle, a hollow package support mounted on the spindle and capable of independent rotation wherein the package support rotates in the same direction as the spindle but at a reduced speed.

Processing synthetics on the cotton system

Anon. *Textile World 102:9,* 84-92, 339-342 (September, 1952).

Procedures, machine settings and other pertinent data for processing acetate, Acrilan, Orlon, X-51, Dacron, nylon, Dynel, and rayon on the cotton system are given in this article.

Spinning spindle

Alejandro Handschin, U. S. P. 2,601,755 (July 1, 1952).

Improvements in spinning spindles particularly designed to provide a double twisting effect of the thread material supplied by the front drawing frame of a continuous spinning machine and comprising a frame, a spindle journaled in the frame and having an axial hollow in one end portion opening through that end and a transverse orifice communicating with the inner end of the hollow, a pulley on the spindle for driving same, a bobbin-carrier journaled on the hollow spindle end, a bobbin frictionally engaged by the carrier, a stationary drum surrounding the carrier and bobbin, means fixed to the drum and tensioning the thread material, other means on the drum guiding the tensioned thread material after its passage through the orifice and hollow, reciprocatory third means guided on the drum and feeding the thread material to the bobbin, a fourth means reciprocating the third means on the drum, and frusto-conical plate fixed to the carrier and frictionally engaged by the thread material to rotate the carrier during rotation of the spindle.

Spinning method and apparatus

Benjamin Liebowitz, U. S. P. 2,602,195 (July 8, 1952).

A method of drafting a stretch of roving which comprises the step of subjecting the roving to a long draft of at least about 4 to 1 by drawing the roving across a stretch not exceeding substantially three fiber lengths while subjecting the roving in the region of minor length adjacent the end of the stretch toward which the roving

is drawn to a false twist in excess of that permitting substantial drafting of the fibers in the region, the false twist in excess of that permitting substantial drafting being localized in the region by the long draft and the fibers of the roving being drawn into the region of false twist where in the false twist is in excess of that permitting substantial drafting, from the balance of the stretch of greater length merging therewith in which there is diminishing twist away from the region permitting the long drafting of the roving.

Weighting means for the drafting rollers in preparatory and spinning machines

Joseph Noguera, U. S. P. 2,602,966 (July 15, 1952).

A spring weighting device for the drafting rollers in preparatory and spinning machines.

Winding and Spooling B 5

Automatic take-up reel

Douglas T. Gleason (to J. L. Gleason & Co., Inc.); U. S. P. 2,605,977 (August 5, 1952).

A take-up reel having in combination two independently rotatable spring driven shafts positioned end to end in axial alignment, an arm, a winding sheave mounted on the arm, the arm and sheave mounted on and secured to one shaft, a winding reel, and an active cable reel, the winding and active cable reels mounted on the other shaft and secured to it for rotation.

Careful control of all factors is the secret of handling contiuous filament

D. S. Hamby. *Textile World 102:9,* 74-75; 296-300 (September, 1952).

Certain factors which must be controlled to successfully process continuous filament synthetics are given in this article. For nylon, tension, moisture, and static are critical factors in processing. Close control of conditions and careful maintenance of machines are necessary in all continuous filament synthetic processing. With Dacron and Orlon static is the most troublesome factor, but the use of agents and careful control of machines and atmospheric conditions iron out problems.

Direct driven winding machine and bobbin mounting means

Arden E. Roane, U. S. P. 2,605,973 (August 5, 1952).

Winding apparatus comprising a support, a

driving motor mounted adjacent one end of the support, a bearing structure mounted adjacent the other end of the support, a longitudinally extending shaft journalled in the bearing structure and coupled at one end with the driving motor, a carrier on the other end of the shaft detachably supporting a bobbin to be wound with wire and the like, a countershaft journalled in the bearing structure and extending in a direction substantially normal to the first mentioned shaft, a worm carried by the first mentioned shaft intermediate the ends of the bearing structure, a worm wheel carried by the countershaft and extending in a plane substantially within the limits of the shaft and meshed with the worm on the shaft, a cam on one end of the countershaft disposed in spaced relation to the worm wheel, a calibrated dial adjacent the other end of the countershaft and operative over the calibrated dial, a slidable bar mounted in the bearing structure and movable in a plane substantially parallel with the plane of the cam, a wire guide mounted on the end of the bar adjacent the carrier for directing wire on to a bobbin supported by the carrier, the bar having slots therein adjacent the peripheral edges of the cam and pin members extending through the slots and clamping means for maintaining the pin members in a predetermined positions for engaging the peripheral edges of the cam for controlling the length of stroke of the wire guide.

Machine cleanliness is vital to quality throwing of nylon

Anon. *Textile Industries 116:8,* 106-108 (August, 1952).

Cleanliness is essential in throwing nylon yarn for use in either hosiery or tricot fabrics. Article gives procedure and schedule used at Tennessee Knitting Mills, Inc., Columbia, Tenn. in keeping your equipment and yarn clean.

New machinery: Soft package attachment for winding dye tubes

Anon. *Textile Age 16:9,* 76 (September, 1952).

Universal Winding Company has available a soft-package attachment which can easily and inexpensively be applied to No. 5 winding machines for winding synthetic yarns on to 1⅝ inch dye tubes at spindle speeds up to 1050 r. p. m. This attachment permits very close control over winding tension and the soft packages which result are particularly suited for high pressure dyeing systems.

Stretching automatic motions to the limit

Anon. *Textile Industries 116:8,* 100-103 (August, 1952).

Article describes operation of an automatic chalk marker as applied to the Whitin-Schweiter Automatic Filling Winder at Bachmann-Uxbridge Worsted Corporation.

Thread guide material next to diamond in luster retention

Textile World, 102, 160 (October, 1952).

A new thread guide material, ALSiMag 513, has been developed by the American Lava Corp., Chattanooga, Tenn. The new thread guide has great hardness and high resistance to chipping. Diamond is said to be the only material that will retain its original finish for a longer time.

Winding machine

John V. Keith (to Universal Winding Company); U. S. P. 2,605,974 (August 5, 1952).

In a winding machine comprising means for supporting a winding package, means for rotating the package, means for transversing yarn longitudinally of the package, and means for mounting the package-supporting means for permitting relative movement between the package-supporting means and the traversing means. a moveable element, friction means engaging the moveable element, and means operated by the relative movement in either direction between the package-supporting means and the traversing means to cause relative movement in opposite directions between the friction means and the movable element.

Work load calculations for winding machines

Jesse W. Stribling. *Textile Industries 116,* 135-150 (October, 1952).

Article describes the ways of calculating job loads for hand-operated winding machines. It describes the different types of winders, gives methods of analysis of operation, and different methods of doffing. It shows how to set up standards, and piece rates, to calculate spindles per operator, and how to set up methods of payment.

Yarn tensioning device

Ingham S. Roberts (to American Viscose Corp.); U. S. P. 2,613,886 (October 14, 1952).

A device for tensioning a strand received from a revolving path comprises a lower plate-member having a passageway therein which loosely supports an upper plate having a short stem extending downwardly into the passageway.

Yarn Application B 9

Apparatus for drawing and heat-treating yarns

Harold F. Hume (E. I. duPont de Nemours and Co.); U. S. P. 2,611,923 (September 30, 1952).

Apparatus for carrying out the two stages of drawing and heat-treating heat-stretchable yarns comprises an unheated feed roll, a heated draw roll driven at a greater speed, and a cold roll to receive and maintain the yarn at a predetermined tension.

Method of producing elastic thread

Robert R. Dreisbach (to The Dow Chemical Company); U. S. P. 2,605,508 (August 5, 1952).

The method of producing a rubber-like elastic thread which comprises: mechanical working at an elevated temperature and dry-extruding through a thread-forming orifice having a diameter below 0.050 inch a vulacnizable plastic composition consisting of a rubber-like copolymer of a mixture of 1.0 part of a lower aliphatic conjugated diolefin, 0.15 to 1.5 parts of an alpha-methylene-lower alkyl cyanide, and 0.0 to 4.0 parts of a lower alkyl alpha-methylene-lower alkyl ketone, together with rubber-compounding and vulcanizing agents; and curing the resulting extruded thread while preventing it from adhering to like thread during the curing step.

Steaming of textile materials

H. Haas. *Melliand Textilber. 33,* 541-44 (1952); *in German; Chem. Abs. 46,* 8381 (September 10, 1952).

The twist in yarns of textile is fixed by steaming at pressures over 1 atm. and over 100°; however, high temperature and humidity in the presence of air causes fiber damage because of degradation of the macromols. To avoid this type of damage it is suggested to use vacuum instead of pressure, which eliminates air and operates at temperature under 100°. Very rapid steam satn. of all parts of the yarn is achieved. A useful vacuum vessel is described.

FABRIC PRODUCTION C

Yarn Preparation C 1

Beam brake provides improved tension control, reduces run-out waste

Cocker Machine and Foundry Co., Gastonia N. C. Staff. *Textile Industries 116,* 156 (October, 1952).

See front section.

Beam storage racks

Frank L. Byrd. *Textile Industries 116:8,* 104-105 (August, 1952).

Article explains and illustrates beam storage racks which can store forty 30″ head beams in the space required for 16 beams stores on the floor. Beams are stored vertically in motor-driven racks which may extend through several floors.

Hot air slasher features high production, less shedding

Staff. *Textile Industries 116,* 113 (November, 1952).

See front section.

Pressure-cooked and stored size eliminates heat loss and crusting

Textile World 102, 158 (October, 1952).

A pressure system warp size cooker that acts at the same time as a preparation unit, and as a day-or-two storage vessel that eliminates deterioration of the prepared size has been made available by Ruti Machine Works, Ltd., Ruti, Zurich, Switzerland. The container is insulated to keep heat loss to a minimum, and the liquid can be kept warm for a long time.

Quality control at Avondale Mills

Gardner M. Hailes. *Textile Bulletin 78,* page 141 (September, 1952).

See front section of October issue.

Slasher head end unit

Anon. *Textile Age 16:9,* 77 (September, 1952).

Tower Iron Works has developed a new head end for slashers, engineered so that the comb is within easy reach of the slasher tender. The unit is described as extremely versatile and can accommodate new large size and standard size of loom beams. Many of the latest type controls, etc., are used in this unit.

Textile sizing

Bernhard G. Zimmerman. U. S. P. 2,614,103 (October 14, 1952).

A reaction product for sizing textile strands comprises a glycol with diethanolamine wherein the product is combined with starch for forming a viscous liquid reaction product.

Weaving C 2

A new, quick way to set your Knowles head motion

James A. Edwards. *Textile World 102,* 93

(September, 1952).

Your loom fixers can spend a lot of time setting a head motion. If a fixer isn't careful, he will spend much of his time backtracking. Don't play around with the job. Follow these one, two, three instructions to set a head and get away from the loom. These settings are for C-4 looms—W-3 settings are only slightly different.

Perhaps the reason the Knowles head motion looks so complicated is that the box motion and the head motion are both driven from the same main shaft. Segregating the box motion from the harness motion will simplify the task a great deal.

Bobbin guide protector for botting changing looms

Textile Industries 116, 117 (August, 1952).

Article describes a small metal shield applied to the bobbin guide to eliminate the wear caused when the metal rings on the heel of the bobbin strike against this guide every time a bobbin is transferred.

Compensating bearing for cloth rolls of looms

Harley L. Canup, U. S. P. 2,601,876 (July 1, 1952).

An adjustable cloth roll bearing adapted to be attached to a loom frame, in which a take-up roll operates, comprising vertical guides, bearing members mounted for vertical movement longitudinally within the vertical guides and in which the ends of the shaft of such cloth roll are mounted, cylinders, the bearing members being connected to the upper ends of the piston rods, a pipe line common to both cylinders through which air under pressure is passed into the cylinders maintaining the cloth roll under predetermined pressure against the take-up roll, controlling the winding of material on the cloth roll.

Eccentric drive gearing may improve loom performance

Staff. *Textile Industries 116,* 134-134A (October, 1952).

The School of Textiles, Clemson Agricultural College, Clemson, S. C., has been experimenting for several months with the use of off-center gears for loom drives. The idea is to allot a greater part of the time for crankshaft cycle to the movement from top center to bottom center than is allotted for movement from bottom center to top center. The shafts of the crankshaft gears were moved just 8% from center, and this slight change allows 56% of the cycle for picking and

44% for beating up. The eccentric gearing arrangement as installed on a loom at Clemson, permits an increase of about 12% in the speed of the loom without increasing the shuttle speed. Picking time is not reduced; it is the beating-up part of the cycle which has been speeded up so as to allow an increase in loom speed.

Filling control in weaving synthetic yarns

Richard B. Pressley. *Textile World 102* 76, 311-312 (September, 1952).

No problem in the manufacture of synthetic fiber cloth is greater than that of filling control at the loom. Each style of cloth and each type of fiber demands special attention for loom settings. Planned style settings to control the filling yarn will eliminate (1) Slack Picks, (2) Tight picks and stretched filling, (3) Broken selvage ends and broken filling. Points to consider in the elimination of the above faults are given in this article.

Fix your Roper let-off to stop wavy cloth

W. C. Westbrook. *Textile World 102* 113-115, 356-358 (September, 1952).

Most barre cloth can be stopped if Roper let-offs are checked once a year by the methods given in this article. By these checks, you can know that your let-offs are in good mechanical condition and that your loom-fixers are free to work on increasing production.

How one mill positively controls filling at the loom

Anon. *Textile World 102,* 77-78 (September, 1952).

This mill realizes the importance of filling control at the loom. The quality of the cloth shows that a filling control system pays its way. In addition, by-product benefits show that shuttle inspection permits the running of larger filling packages, makes reed replacement infrequent, increases life of shuttles and loom leathers, decreases the number of flagged looms.

Italian narrow-fabric loom inserts 450 double picks per minute

Anon. *Textile World 102,* 160 (October, 1952).

A new Italian-made narrow-fabrics loom, called the Sitam 3A60, manufactured at Milan, Italy, is suitable for any type of narrow fabric work, heavy or light, and ribbons or webbings up to 2⅜ inches can be woven. The loom is capable of 450 double picks or 900 single picks per minute. Two picks are inserted in the fabric with each

shedding motion. Warp and Filling stop motions are provided.

Loom-bobbin finish is integrated into the wood

Anon. *Textile World 102,* 166 (October, 1952).

A new automatic-loom bobbin finish that is virtually indestructible, has been perfected by New England Bobbin & Shuttle Co., Nashua, N. H. The finish consists of a resin-base thermosetting plastic, which is integrated into the bobbin during manufacture. It is claimed that weave troubles, such as yarn abrasion and snags due to roughened bobbins are eliminated.

Loom and method of weaving

Walter J. Budzyna, Maurice R. Flamand, U. S. P. 2,604,123 (July 22, 1952).

The method of inserting two connected picks of filling from a stationary supply in separate sheds of a fabric being woven in a loom, which comprises the steps of inserting each pick by drawing filling from a supply and inserting it part way across the fabric by a first carrier member, then transferring that filling to a second carrier member and drawing it into the shed for the remainder of the width of the fabric while controlling the filling as it is presented to the first inserting member so that at pick the relatively free end thereof is maintained to draw beneath the inserting member while the other (not severed or released) end thereof is caused to lie above the inserting member.

Means for moving filling out of the path of travel of the shuttle of a loom

Joseph E. Hamilton and Amos L. Banister, U. S. P. 2,603,243 (July 15, 1952).

A unique method of catching the filling and shifting it out of the path of travel of the shuttle. The filling is embedded in a series of long strands (the material of which is not described) and is thereby pressed against the rear side of the shuttle box. A special head is also designed for installation between the shuttle box and the grate. The action of this head is designed to move long strands, which hold the filling, from the rear of the shuttle box so that the filling moves out of the path of the shuttle.

New warp let-off motion designed for high speed knitting machines

Anon. *Textile Recorder 70,* 92 (September, 1952).

A new let-off developed by Robert Reiner, Inc., of Weehawken, N. J., for use with its high speed

warp knitting machines is an integral part of the machine and is directly driven from the camshaft. The mechanism automatically compensates for change in beam diameter and provides a constant linear speed of warp withdrawal from start to finish.

Paper fabric manufacturing needs close quality control

Richard C. Scott. *Textile World 102,* 137-141, 282 (October, 1952).

Wortendyke Mfg. Co. has found in two years of operation at its Waynesboro, Va., branch plant that careful checks must be made of each operators work by a system of marks and tags at each step of processing, settings and tensions on regular and specially developed machinery must not vary, and controlled atmospheric conditions can greatly ease the twisting, weaving and finishing of raw paper into attractive automotive fabrics.

Picking motion for underpick looms

Kurt Schwabe, U. S. P. 2,601,874 (July 1, 1952).

A picking motion for under pick looms comprising, in combination, a picking stick, a convex member mounted on the picking stick, the convex member being in the shape of the middle portion of a spherical zone having a central apperture through which the picking stick extends, a ring member having a spherical inner surface adapted to serve as a bearing for the convex member, and linkage means attached to the ring member and adapted to transmit the picking movement and the return movement to the picking stick.

Selvage motion

Price W. Morrison, U. S. P. 2,602,471 (July 8, 1952).

An improvement in a selvage attachment for a loom having a cam shaft, side frame members and front and rear girts spanning the side frame members and also having intermediate girts extending forwardly and rearwardly between the front and rear girts and having a lay and also having means for directing warp yarns to the lay and the loom also having an arch thereon, the loom also having an improved selvage harness and at least one second selvage harness, the loom also having an upper selvage rool bracket carried by the arch of the loom and a lower selvage roll bracket supported by the intermediate girts of the loom, and having upper and lower selvage roll brackets, respectively, the attachment also

having an upper and a lower harness strap adapted to pass above and beneath the upper and lower selvvage rolls, respectively, so that opposed ends of the upper and lower harness straps extend toward one another and means connecting the upper and lower ends of the first harness to the proximate ends of the upper and the lower harness straps extending from one side of the upper and lower selvage rolls, respectively, the attachment also having means connecting the second selvage harness with the proximate ends of the upper and lower harness straps extending from the other side of the selvage rolls, the attachment also having a forwardly and rearwardly extending control lever oscillatably mounted on the upper selvage roll bracket and having one of its ends extending adjacent the downwardly extending portions of the upper harness strap, the attachment also having means connecting one of the downwardly extending portions of the upper harness strap to the control lever, the improvement comprising a connecting rod connected to the other end of the control lever, a forked follower guide connected to the lower end of the connecting rod and having its lower end fitting on opposed sides of the cam shaft, a selvage face cam fixed on the cam shaft and having inner and outer grooves in one side thereof and merging with each other at one point, a crescent-shaped member pivoted on the follower guide and having movement alternately in the grooves to move the selvage harnesses a greater amount upon alternate revolutions of the cam shaft than on the other revolutions.

Sweepstick for looms and self-aligning bearing therefor

Edward V. Dardani, U. S. P. 2,601,875 (July 1, 1952).

In combination, a sweepstick for looms, and sweepstick consisting of a length of shock-absorbing material, such as wood, having an end portion provided with a bearing-receiving opening having end walls transverse to the length of the sweepstick, and a bearing assembley engaged in the opening and comprising a pair of complementary socket-forming members joined together along the central plane of the opening and each having a central socket portion complementary one to the other to form a spherical socket, at least one of the socket-forming portions having a central stud-receiving opening, the members each having transverse abutment wall portions engaged with the end walls of the opening, and a ball end stud member engaged for swiveling movement in the

sperical socket and extending outwardly therefrom through the stud-receiving opening.

Temples without rolls developed at Clemson

Textile World, 102, 122 (October, 1952).

Special temples made at Clemson will grip fabrics that are difficult to hold to full width in the loom. The temple is made from the basic parts of a rayon-type temple with the cap and rolls removed. A clip, similar to a tenter-frame clip, is placed on the cap head. It seems that this temple will hold any fabric that can be held by gripping only the selvages, and the cloth woven with the temple is uniform in appearance from selvage to selvage.

Thread guide device on a shuttle

Ernst Honegger, U. S. P. 2,604,909 (July 29, 1952).

A one-piece threading block formed of sheet material for use in shuttles having a bobbin chamber and side thread delivery opening comprising a U-shaped portion formed by a bottom from which extend a pair of spaced upwardly extending parallel side walls providing a longitudinally extending thread passage, a spiral guide extending from one of the walls longitudinally and centrally of the thread passage, a front wall bent from the forward end of the spiral guide carrying wall extending between the lower portion of the walls and against the base for maintaining the walls and base in their spaced relation and forming a central thread guiding member, an L-shaped leg extending laterally and forwardly from the guide supporting wall, the base of the L-shaped Leg having a guide extending therefrom in line with the thread passage, the end of the second mentioned guide having a hook shaped configuration, the upright arm of the L-shaped leg being substantially parallel to the pair of walls and having a thread guide slot formed in the end thereof and the pair of walls having an opening therethrough adjacent their base for receiving a shuttle connecting bolt.

Two new ideas in weave-room organization

Anon. *Textile World 102,* 98, 200-204 (October, 1952).

The need for specialists in the weave room of today is apparent to the overseer who wants to stay in the picture on all his weave-room developments. For better weave-room control and operation, this article recommends a supervisor of loom-fixing and a supervisor of lubrication. The information contained in this article was provided

by the *Draper Digest,* house organ of the Draper Corporation.

Use uniform loom settings to improve cloth appearance

W. C. Westbrook. *Textile World 102,* 126-127, 240-243 (October, 1952).

Cloth appearance can be improved on any fabric from a low count carded cloth to a combed broadcloth. A few loom settings are the only changes that are needed. The settings will eliminate reed marks, fill spaces between uneven yarn, and give the cloth an even appearance. A wooden gauge which can be used to make seven loom settings is described in the article.

Warp tension is constant on C-4 looms at Clemson

Textile World 102, 123 (October, 1952).

Through research at Clemson College, the need for daily checking of loom warps for constant tension has been eliminated. The whiproll was removed from the loom frame and mounted through a rigid frame on the beam itself and the whiproll oscillates with the precision let-off. The weight for any desired force on the warp can be accurately computed, and the weights never need to be changed as the yarn is wound from the beam.

STANDARD FINISHING D

Achieving maximum efficiency in textile drying plants

Leo Walter. *Textile Recorder 60,* 85-87 (October, 1952).

In many mills, the drying plant is being operated at low efficiency, both with respect to output and heat demand. This article gives the general procedure which can be used in improving the output of the drying plant regarding both efficiency and production.

Apparatus for uncurling selvages

Leslie L. Walmsley (to American Viscose Corp) ; U. S. P. 2,613,521 (October 14, 1952).

Apparatus for uncurling the selvages of a tricot fabric comprises a vessel containing a heated liquid, a fabric guiding member wherein the lower surface of the guide defines the upper side of the path for the fabric, and uncurling means at the bath entrance.

Apparatus for uncurling selvages

Robert D. Heffelfinger, (to American Viscose Corp.) ; U. S. P. 2,613,522 (October 14, 1952).

Apparatus for uncurling the edges of a fabric comprises a vessel containing a relaxing liquid, fabric guiding means in the vessel, means for drawing the fabric along the path defined by the guiding means in a substantially untensioned condition, and uncurling means at the bath entrance.

Automatic cloth counter and conveyer

Lawrence L. Bird, U. S. P. 2,602,535 (July 8, 1952).

An automatic counter is described by this patent which is designed for finished cloths, or pieces of fabrics such as handkerchiefs, pillow cases, etc.

Continuous bleaching range is flexible and efficient

Anon. *Textile World 102,* 102-103, 234-236 (October, 1952).

Continuous, straight-line peroxide bleaching range at Startex Mills, near Spartanburg, S. C., processes cloth 18 to 64 inches wide, and from one to eight yards per pound in weight. A unique combination of controls and variable speed drives maintains tension correctly from scutcher to batch roll.

Machinery built for the job, used by men with know-how, makes finishing pile fabrics seem easy

Textile World 102, 99-101 (October, 1952).

Cut pile fabrics of Fiber E are finished completely in the gray to eliminate crush marks. If the nap is not allowed to crinkle evenly during causticizing, crush marks will show up as permanent scars on the fabric. Article explains way in which Eagle Dyeing & Finishing Co., Mount Holly, N. J., processes Fiber E and other frieze fabrics.

Napping energy indicator provided for Gessner machines

Anon. *Textile World 102,* 160 (October, 1952).

Energy, or the amount of nap raised, has long been a difficult force to indicate and tabulate. This new energy indicator gives a continuous indication of energy as the napper is being operated, and any change in the energy force is instantly observed. The new indicators are included on all new Gessner nappers, and can be installed on most existing nappers.

DYEING AND PRINTING E

Blends—How to handle them in bleaching and dyeing

Textile World 102, 99, 275-278 (September, 1952).

The one absolute essential for repeated success in dyeing mixtures of fibers is a thorough knowledge of the properties and processes required by each fiber. To get best results, you must know fiber properties, tailor the processing to the weakest fiber, and try new methods when they seem to present an advantage.

Danish jig saves time, dye, chemicals

Anon. *Textile World 102,* 108-109 (October, 1952).

A fully automatic jig operating in a New Jersey dye house saves up to 25% on materials alone. It is equipped with an electronic regulator that reverses up to 23 ends automatically, maintains tensions and regulates deviations automatically, stops and lights an alarm if anything fails to function properly, and permits one man to run four to five jigs.

DuPont's Barotor

Anon. *Textile Age 16,* 14, 15, 16, 17, 18 (October, 1952).

See front section.

Dyed polyacrylonitrile fibers

American Cyanamid Co. *J. Soc of Dyers and Cols. 68,* 368 (1952) ;B. P. 673,738,.

Dyed fibers of acrylonitrile copolymers are obtained by spinning an aqueous salt solution of the polymer into water at $<10°$ C. and passing the swollen fiber into a bath containing an acetate rayon dye.

Dyeing textiles

Henry G. Oplin and Tom Jackson (Celanese Corp. of America) ; U. S. P. 2,614,023 (October 14, 1952).

For coloring textile made of cellulose derivatives, the material is treated with an ester of a leuco vat dye in a mixture of water and an organic liquid containing urea after which the ester is converted to the parent vat dye.

Dyeing of synthetic fibers

B. P. 675,244, Basf. *J. Soc. of Dyers and Cols. 68,* 369 (1952).

Very fast dyeings are obtained on synthetic fiber-forming substances with water-insoluble esters of anthraquinone leuco vat dyes and monocarboxylic acids of 8°C.; e.g. addition of leucodibenzanthrone acetate to a viscose spinning solution results in deep red-brown filaments of excellent fastness to light and washing.

For good results with the hot oil process

Anon. *Textile World 102,* 105, 238-240 (October, 1952).

For good results with the hot oil process, General Dyestuff Co., recommends the use of a good oil which has low viscosity, low aromatic content, low unsaturation, high flash point, and high boiling point. The temperature should be kept within the range of 240° to 250° Fahrenheit, air exposure should be kept down by placing units close together, high pressure steam coils should be avoided since high local temperature breaks oils down, and keep moisture content of entering goods high enough to maintain the steam-in-oil emulsion level. Do not let the goods dry in the oil. Several recommended arrangements and processes are given in this article.

How to do the best job with your pad-steam range

C. Norris Rabold. *Textile World 102,* 106, 225-234 (October, 1952).

Today's technques and equipment for piece dyeing make it possible to produce large yardages of uniform shade and appearance, at a minimum of cost. Dyeing and finishing of piece goods has therefore become an increasingly competitive operation. Greater demands have been made upon the dyer for uniformity of shade, lower cost, and better appearance. Any new process for the continuous application of color to fabric creates a number of new technical problems. This article is concerned with the pad-steam process of vat dyeing and proper choice and utilization of equipment.

New print ager speeds production over 300%

Anon. *Textile World, 102,* 109 (October, 1952).

Based on yardage production, floor space needed for the Proctor & Schwartz Ager is half that needed for older types. A minimum speed of 90 yards per minute gives a production rate of 180 yards when two strands of 50-inch goods are run, and the printed face of the goods does not contact metal during the critical part of the aging cycle. One mill using the ager estimates the saving in labor alone will amortize the investment in slightly more than 5 years.

Newest idea for pressure dyeing, DuPont's Barotor

Anon. *Textile World 112,* 107 (October, 1952).

E. I. duPont Nemours & Co., Inc., Wilmington,

Del., has developed a new piece dyeing pressure machine called the "Barotor" that uses a new principle of goods handling. In the Barotor, the cloth is strung over and under a cage-like structure of bars mounted on a rotor. As the rotor turns, the bars move under action of gravity in odd shaped grooves to give the cloth a constant motion through the dye liquor. The entire rotor assembly is inserted into an autoclave that serves as a dye kettle.

North Carolina Finishing Co. is dyeing with hot oil

Anon. *Textile World 102,* 104 (October, 1952).

See front section.

North Carolina Finishing Co. is dyeing with hot oil

Textile World 102, 104 (October, 1952).

Vat and sulfur dyeings are being made on cotton work-clothes fabrics of 1.57 yards per pound average weight on a Williams hot oil range at North Carolina Finishing Co., Salisbury, N. C. Washfastness and lightfastness are as good as those obtained in dyeing by conventional methods. Crockfastness generally is good, the fixation is better in the oil bath method and bronzing cannot occur. It is reported that this process pays off in shade uniformity, in savings on dyes and chemicals, and that oil consumption averages one gallon per 100 yards of cloth.

Relation between certain defects in dyed fabrics and mechanical damage in wet processing

D. M. Cates, K. S. Campbell and Henry A. Rutherford. *Textile Res. J. 22,* 623-30 (1952).

It is shown that mechanical damage by abrasion on the surface of cotton, viscose, Fortisan, and acetate fibers results in an increase in the initial rate of dyeing at the damaged area. This produces an abraded area appearing darker than the undamaged background up to the point where the amount of dye actually absorbed is approximately the same in both areas. This point may occur in a matter of minutes or hours, depending upon the nature of the dye, the degree of abrasion, and external conditions; when both areas contain approximately the same amount of dye, any apparent difference in depth of shade between the two areas is optical in nature, and it is most common for the abraded portion to appear lighter.

The leveling of dyes

G. H. Lister. *Textile Recorder 60,* 83-84 (October, 1952).

Levelness of dyeing is a matter of major importance when dyeing goods in the form of yarn or piece. The levelness of a dyeing depends on one of two factors, even adsorption of the dye or its ability to migrate from one part of the material to another if adsorption is uneven. Article covers the theory of dyeing, the causes of poor leveling of dyes, and gives a partial answer to the problems concerning the levelness of dyeing.

The dyeing of nylon textiles

Anon. *Textile Recorder 60,* 99-100 (October, 1952).

This article is an outline of the various types of dyestuffs which can be successfully applied to nylon, and gives techniques involved in their use.

The embossing and printing of coated fabrics

Thomas J. Kerr. *Textile World 102,* 117, 278-290 (September, 1952).

Article describes several techniques to be used in the embossing and printing of fabrics coated with vinyl resins. It is brought out in the article that while heat is essential, the best roll temperature varies, low pressures are best, and face and back of cloth should be pre-heated. Tandem embossing, roller embossing and some special effects are discussed.

SPECIAL FINISHING F

Choose the proper components to compound vinyl coatings

Thomas J. Kerr. *Textile World 102,* 43-145, 192-194 (October, 1952).

End use of the fabric, hand, toxicity, color, cost, and stabilization are factors that must be compromised to reach the satisfactory compound for each purpose. The data shown in this article in respects to the characteristics of compounds could be duplicated with only reasonable accuracy if the same resin were used. In general, however, the compounding principles are applicable to all resins.

Crease and soil resistant cottons

Anon. *Textile Industries 116,* 99 (August, 1952).

Of special interest to cotton textile manufacturers will be the findings of the market research department of the National Cotton Council regarding research needs or opportunities for cotton. The items in which research is needed are listed as crease resistance, shrinkage control, fast colors, and resistance to soil.

Finishing with the urea-formaldehyde resins

J. J. Bernard. *Textile Industries 116,* 118-123 (August, 1952).

One of the most important factors in the great expansion of viscose rayon fabrics was the discovery that the properties of rayon could be improved by treating the fabric with monomeric condensation products of urea and formaldehyde. This treatment, which imparted a greatly improved ability to recover from wrinkling, together with resistance to stretching or "bagginess," was first offered to the textile finishing industry as a process which required the industrial plants to prepare the condensate for their use. This article describes the development of this process, the procedures for its use, and the results obtained.

Flameproofing

Morris L. Nielsen and Howard K. Nason, U. S. P. 2,603,614 (July 15, 1952).

A glowproofing composition comprising the combination of a phenolic resin and the reaction product of 2 to 4 moles of melamine and 1 mole of phosphorus pentoxide heated to a temperature of about 400° C., the reaction being present to the extent of 3% to 90% by weight in the composition.

New machine for pleating nylon fabrics

Anon. *Textile Recorder 70,* 97 (September, 1952).

A new machine which can permanently pleat nylon with a great variety of pleats at a speed of 15 to 50 yards per hour has been developed by the German firm of Karl Rabofsky in the western sector of Berlin. With it, single pleats or groups of pleats can be inserted in Nylon fabrics. It is understood that 15 denier monofilament fabrics give the best results.

Shrink-resist process

Cluett, Peadbody and Co., Inc. *Brit. Rayon and Silk J. 29,* 74 (September, 1952); B. P. 673,642 (June 11, 1952).

The process comprises impregnating cotton or viscose rayon or viscose rayon-wool mixture fabrics with a liquor of pH less than 5.0 containing mono-methylol formamide and a catalyst which is of itself an acid or is capable of liberating an acid having a dissociation constant of not less than 1.76×10^{-4} at 25° C., then drying it at about 212° F., curing for five minutes at 300° F., and washing.

Using the silicones as water repellents

Staff. *Textile Industries 116,* 159 (November,

1952).

See front section.

Water repellent textiles and method of making same

Alton A. Cook, Nathaniel C. Shane, and Ernest B. Whitworth, U. S. P. 2,603,567 (July 15, 1952).

A process of treating a textile material which comprises processing it in an aqueous bath containing a wax and a long chain fatty acid soap, drying and then processing it in a second aqueous bath containing a dilute acid and a water soluble polyvalent metal salt, and finally drying, at least one of the baths including a water soluble cellulose derivative and at least one of the baths also containing a water soluble aldehyde resin precondensate.

Water-repellent composition

Thomas J. Hasmussen (General Electric Co.); U. S. P. 2,612,482 (September 30, 1952).

A composition for rendering textiles water-repellent comprises water-soluble urea-aldehyde or melamine-aldehyde resins, an organopolysiloxane and a methyl hydrogen polysiloxane.

TESTING AND MEASUREMENTS G

Now you can grade cotton with a laboratory instrument

T. V. Crawley, Jr., Jack D. Towery, Billy K. Power, and Lyle E. Hessler, Cotton Research. *Textile World 102*, 100-101, 335-339 (September, 1952).

The overall color of machine picked cotton contains three variable components, (1) the trash that is present, (2) greying due to weathering in the field to produce defoliation, and (3) strains produced by frost. For an evaluation of this color problem, a series of tests was made on 146 samples of cotton with a photoelectric reflection meter with three tristimulus filters: green, amber and blue. The meter gives a close approximation for white and near-white surfaces and is well suited for making color measurements on cotton.

The tests indicate that the meter, if properly used, can give dependable grade data, either alone or in duplicating grading by experienced cotton classers. Of the 146 samples which had been graded by two classers, the instrument graded the sample with 87% accuracy. For color alone, it was 94% accurate. The unit consists of a photoelectric reflection meter and a search unit which

uses a 6 volt, 15 candlepower automobile headlamp as a light source.

Instruments and Instrumentation G 2

A simple apparatus for determining the elastic limit

Erich Wagner. *Z. Textile Industrie 54*, No. 5, 199-201 (1952), *in German*; *Brit. Cotton Ind. Res. Assoc. 32*, 659 (September 15, 1952).

A simple apparatus for the determination of the limit of elasticity consists essentially of a balance beam on the right-hand section of which is a clamp for securing one end of the specimen. The other end of the specimen is secured to the base. The extreme end of the right-hand beam acts as a pointer moving over a scale marked off in percentage extension. The left-hand section of the beam has a notched scale and a rider moves along it so that loads of 30 g. and upwards can be applied. The length of specimen is 500 mm. The mode of operating the instrument is described and the results of tests on similar specimens by individual investigators are tabulated.

Determination of the degree of whiteness of textiles

E. C. Casper. *Melliand Textilber. 32* 518-21 (1952), *in German; Brit. Cotton Ind. Res. Assoc. 32*, 719 (1952).

For objective measurements of the degree of whiteness and the shade of optically whitened textiles, a specially constructed electronic reflection colorimeter with interference filters is employed. The construction of this special colorimeter, which is based upon the flicker method, and the principle underlying its operation, are explained.

Fatigue testing machine for tire cord

Thos. J. Rhodes (U. S. Rubber Co.); U. S. P. 2,612,040 (September 30, 1952).

A fatigue testing machine for cord, such as tire cord, comprises a mechanism for periodically subjecting the cord to longitudinal tension, longitudinal tensioned strands disposed about the cord and means for twisting these strands into and out of tight relation to periodically compress the cord.

Moisture content determination

Nils. N. Stratveit and Arne J. Schie, U. S. P. 2,611,974 (September 30, 1952).

A method for measuring moisture content of a dried running web comprises measuring the decrease of the temperature of the web caused by evaporation of part of the water content there-

from between two fixed points at a place where the moisture content of the web is below 20%.

"Stelometer" cotton fiber tester measures elongation and strength

Textile World 102, 158 (October, 1952).

A new instrument for measuring both tensile (breaking) strength and elongation (stretch) of small tufts of cotton fibers has been developed by the University of Tennessee fiber-research laboratory in Knoxville. As in other practical testers, a small tuft of fibers is gripped between two pairs of specially designed jaws spaced a short distance apart. By a pendulum type mechanism, an increasing load is applied to one pair of jaws until the fibers break. The new tensile tester has the advantage over previous fiber testers of measuring both tensile strength and elongation of stretch obtained prior to break.

The tensile properties of cards and drawframe slivers

G. Waggett. *J. Textile Inst. 43,* T380-95 (August, 1952).

The primary factors in the complex property known as cohesion are the longitudinal shape of the fibre, the surface frictional properties and the flexural rigidity of the fibres. The present method measures the sum of all these factors so that studies of each separately usually depend upon the rest being kept constant. The technique adopted for measuring cohesion, and a number of technical features that have been obtained by its use are described.

Water-permeability meter

Textielwezen 8, No. 2, 26-34 (1952), *in Fr.; Brit. Cotton Ind. Res. Assoc. 32,* 719 (1952).

Constructional, operational and experimental details are given of the Schmerber water permeability tester for textile fabrics. The principle of the machine is as follows: water is allowed to flow into a vertical tube at a standard rate. The bottom end of the tube is closed by a sample of the specimen placed across it. Until penetration and/or wetting out occurs the level of the water in the tube rises; the height of the water at the first equilibrium position is dependent on the porosity of the weave of the material. The first maximum equilibrium level is of short duration and eventually a second lower level is established between limits. The greater the permeability, the lower the second level, and if the material has no hydrophobic characteristics, the level soon approaches zero.

TEXTILE MILLS H

Aluminum brings economies to the materials handling field

Anon. *Textile Age 16,* 30-32 (September, 1952).

Materials handling in many plants sometimes represents about a third of total manufacturing costs and sometimes more. Faced with this realization, industry has embarked upon a program to "streamline" its materials handling operation. In an effort to obtain an accurate appraisal of the contributions aluminum is making in this field, the Aluminum Association recently completed a survey of both equipment manufacturers and users. The results showed that textile plants, particularly, have found aluminum materials-handling equipment of distinct value under certain conditions existing in the textile industry.

Companies replacing existing handling equipment with aluminum equipment indicated that over-all cost had to be carefully considered as well as first cost. While aluminum equipment sometimes costs more initially than other types, the over-all cost is often much lower, because of savings in man-power and maintenance expense and longer service life. High salvage value of aluminum, too, should not be overlooked.

Care and maintenance of belt, chain and gear drives

Joseph de Feher. *Textile Age 16,* 56-62 (September, 1952).

Only proper care of belt drives will assure smooth and economical running operation without additional expenses. Similarly, maintenance economies and power consumption requirements on chain and gear drives are also influenced primarily by the manner in which certain simple techniques are applied to keep the drives in good running order. These are the broad problems reviewed briefly in the following sections. Preventive maintenance is the key to long and reliable service in V-belts just as it is for most other equipment.

First-class conveyor serves Springs bleachery

Textile World 102, 94-98 (September, 1952).

Grace Bleachery of the Springs Cotton Mills saw a bottleneck in handling packaged goods for shipment and decided to do something about it. Grace worked with Alvey Conveyor Manufacturing Co., of St. Louis, to design a conveyor system, and with the E. W. Buschman Co., Cincinnati, to work out an addition to the system. The advan-

tages of this system are space necessary for handling has been reduced 90%; damage to property and to packing cases is less; there's less mixed and stray goods; fewer pallets, trucks and boxes are needed; and costs of handling and shipping are greatly reduced.

How warehouse capacity was increased 600%

James H. Kennedy. *Textile World 102,* 104-105 (September, 1952).

To avoid having to build new warehouse space, Beaumont Mills, Spartanburg, S. C., preferred to enlarge the capacity of existing space from 200 bales to approximately 1,400 bales by raising the ceiling of the warehouses from 9 ft. to about 18 ft. They then purchased a Hyster lift truck to stack the bales to take advantage of the extra space. The mill figures that the truck will pay for itself in about 7 months.

Know your labor costs

Michael J. Koroskys. *Textile World 102,* 109-111 (September, 1952).

To set up cost system for your department, just become familiar with the basic principles as outlined in this complete example of a wool-scouring department. Article gives three steps in setting up a cost system in a wool-scouring department. The steps are, (1) classify, describe and code all jobs, (2) determine unit standard costs, and (3) make standards work for you.

Natural gas comes to the Piedmont

John G. Hopping, Ind. Eng. *Textile Age 16,* 26-29 (September, 1952).

According to the management of Abney Mills, at Anderson, S. C., it is estimated that the mill will save $10,000 per year, as a result of conversion to natural gas for industrial fuel. Piedmont Natural Gas Co. introduced natural gas to the Piedmont area in the latter part of 1951 in the cities of Winston-Salem, N. C.; Spartanburg, S. C, and Anderson, S. C. In the early part of 1952, gas was turned on in High Point, Salisbury, and Charlotte, N. C. Mr. Lee Hurst, President of Piedmont Natural Gas Co., advises that the cities of Greenville, S. C. and Greensboro and Burlington, N. C. will be supplied with natural gas in a very short time. Numerous textile mills have already converted to natural gas but the newness of natural gas in this area has somewhat limited its scope of distribution.

New conveyor equipment eases automatic spooler bobbin feeding

Textile World 102, 156 (October, 1952).

A closed type conveying system for the continuous or intermittent feeding of bobbins to automatic spoolers or other machines has been developed by Sunray Co., Spartanburg, S. C. Component parts are illustrated in article.

New humidifying unit is self contained and versatile

Anon. *Textile World 102,* 162 (October, 1952).

"Type E" humidifier has been brought out by the Bahnson Co., Winston-Salem, N. C. The unit can be used for complete humidification systems, for spot humidification, for boosting the capacity of existing systems, and for precise humidity control in laboratories or pilot units. Unit evaporates up to 3 gallons per hour and can be installed singly or in groups with automatic control. Each unit will humidify several thousand cubic feet of room volume at normal conditions. Unit is made of non-corrosive metals, and contains a ¼ hp. motor.

Three yarn processing improvements announced by Saco-Lowell

Textile World 102, 119-120 (September, 1952).

Among improvements to yarn processing machinery announced by Saco-Lowell are a Duo-Roth drafting unit, a New Era filling spindle, and an FS-3 and FS-3W roving-drafting system. The Duo-Roth replaces the middle roll and control roll of the standard Roth system with another belt. The New Era filling spindle uses a short main shaft which mounts the two anti-friction bearings while the top of the spindle itself is solid. This is a departure from the principle of the New Era warp spindle. The main difference between the FS-2 and the FS-3 roving-drafting systems is that the roll stand on the FS-3 has been lengthened and provision has been made so that an auxiliary apron bar may be used.

New power plant serves two woolen plants

Leonard Ramirez. *Textile World 102,* 116-117, 250-252 (October, 1952).

The A. D. Ellis Mills, in Monson, Mass., saved money by building a new steam and power plant to serve two mills ⅜ mile apart. Besides labor and handling costs saved by the use of oil as fuel, proper selection of boilers and generators gives heat balance, constant voltage, and economical operation. Article describes the new installation and the steps which were necessary to change from the old to the new equipment.

Pepperell's new cafeteria makes hungry workers happy

E. Dalton White. *Textile World 102,* 91 (October 1952).

Hot, nourishing food served in pleasant surroundings encourages better eating habits and fosters good employee relations. The 2,500 employees of the Pepperell Mfg. Co., at Lindale, Ga., average about 52 cents per meal in the new cafeteria, which is run by a dietician as department of the mill. Overhead—which includes space, equipment maintenance, power and fuel—is absorbed by the company.

Some southern mill people have a textile heritage almost a thousand years old

David Clark. *Textile Bulletin 78,* pages 134, 135, 136 (September, 1952).

See front section of October issue.

Tests can help you select second hands

Wendell M. Patton, Ph. D. *Textile World 102,* 135, 218-222 (October, 1952).

Testing the second hands in a large Southern Mill turned up two traits that are important in supervision. The traits are: (1) knowledge of the best methods of supervision, (2) ability to apply these methods. The tests that measure these traits are now ready for final checking on new applicants in this mill.

Textile industry public relations called poor, new outlook needed

Anon. *America's Textile Reporter 116,* 12, 13, 14, 38 (October, 1952).

See front section.

The trend of trade

Anon. *Textile Recorder 70,* 64-65 (September, 1952).

A half yearly survey of the production and trade of the United Kingdom cotton, wool, and rayon textile industries during the first six months of 1952. A number of graphs and tables showing the trend of exports, production, and imports of United Kingdom textile industry.

Use a steam accumulator for a constant steam supply

Richard Lang. *Textile World 102,* 129-131, 236-238 (October, 1952).

When equipment calls for a peak load of steam, boilers are often overtaxed. If a steam accumulator is installed, plenty of steam at uniform boiler load will be available. The installation of an accumulator in a Southern hosiery mill

resulted in reduced boiler operation, increased production, and a lower rate of seconds. Article describes the installation and gives some data for engineering calculations.

We make a little loom motor do a big job

Anon. *Textile World, 102,* 112, 198-200 (October, 1952).

Article describes application of anti-friction bearings to the crankshaft of L-model looms running 90-inch sheeting with fairly high construction. It is said that looms can be run with ¾ hp. motors instead of the 1 hp. they thought was necessary, and looms were raised to their recommended 112 picks per minute instead of the 100 at which they were running before the anti-friction bearings were installed.

What about off-the-job safety?

Arthur S. Johnson. *Textile World 102,* 92-93 (October, 1952).

Accidents that happen outside of working hours, can affect plant operations just as much as in-plant accidents. That is why a well-rounded safety program should include all accident areas. Article gives a nine-point program that can help reduce the four major losses that can be attributed to off-the-job accidents.

When is employee help a concern of management?

Paul A. King. *Textile World 102,* 149, 214-216 (October, 1952).

A company should be sure that it is within its rights before it says that a worker's health is its business. It would seem that unless the company is willing to subsidize an employee's lay-off for reasons of health, it would be better to leave the employee's health in the employee's hands. However, a point is reached where the health of the employee becomes the legitimate concern of the company. That point is reached (1) where the employee's bad health keeps him from doing the job adequately, (2) if his bad health jeopardizes the safety of other employees, (3) or where permitting a sick employee to return to work prematurely may result in a longer illness later on and thus increase the cost to the company of company paid accident and health benefits.

$2,171,435,000 used to benefit foreign textiles

Staff. *Textile Industries 116,* 103-105, 134D (October, 1952).

Article describes various ways in which United States money is being used to aid foreign textiles under the different foreign aid programs.

Mills helped to efficiency by technological institute

Anon. *New York Times* (Feb. 2, 1952).

See front section.

CHEMISTRY AND PHYSICS OF TEXTILE MATERIALS I

Adhering fabric to rubber

Clarence W. Brees (The B. F. Goodrich Co.); U. S. P. 2,611,721 (September 23, 1952).

Method of adhering fabric to rubber comprises impregnating the face of a fabric with a vulcanization accelerator, assembling the fabric face in contact with a vulcanizable elastomeric composition comprising a vulcanizing agent and accelerator and then vulcanizing the assembly.

Capillary phenomena in assemblies of fibres

J. M. Preston and M. V. Nimkar. *J. of Textile Inst. 43,* T402-22 (1952).

Studies have been made of the phenomena associated with the presence of films of fluid between fibres. Theoretical and experimental investigations have been made of the relationships between liquid content, hydrostatic tension, contact angle, relative humidity and adhesion between fibers.

Cellosize water-soluble cellulose properties

C. J. Risso Dominguez. Cor. Fot Sudamer No. 578,14 (1947); Cehm. Abs. *46,3758* April 25, 1952).

Cellosize gives a colorless stable soln. in water and has marked adhesive properties. It is rendered insoluble by treatment with chromates and subsequent exposure to light; it is thus a suitable carrier for pigments for the carbon and carbro processes. Treatment with aldehydes or other gelatin-hardening agents renders it insoluble; the material dries to a water resistant film.

Cellophane

Gordon C. Inskeep and Prescott Van Horn. *Ind. and Eng. Chem. 44,* 2511-24 (1952).

The article presents an account of the history, development, manufacture and uses of cellophane.

Deformation of cellulose chain in cellulose triphenylmethyl ether

Sadhan Basu and Dilip K. R. Choudhury. *J. Sci. Ind. Research* (India) 11B, 96-110 (1952) *Chem. Abs. 46,* 7846 (September 10, 1952).

Determinations of molecule weights by osmometry and determinations of intrinsic viscos-

ity of triphenylmethyl ethers of cellulose and of methylethy-cellulose in $CHCL_3$ were made. The viscosity values were low for the corresponding molecule weight values 47,278 and 0.0795 and 49,170 to 0.1925, respective. This is indicative of deformation and extensive coiling of the cellulose chain in the formation of triphenylmethyl derivations.

Degradation of cellulose fibers in acid medium

P. Rodet. *Ann. Chim.* (Paris *6,* 7, 786-833 (1951); *Brit. Cotton Ind. Res. Assoc. 32,* 713 (1952).

The structure of natural and regenerated cellulose fiber is studied by hydrolysis under different conditions and discussed in relation to x-ray and density measurements. In regenerated fibers, the size of the crystallities depends on the conditions of hydrolysis and not on the original "micelles." The curve of the degree of polymerization against time indicates the characteristics of each fiber. The hydrolysis of these fibers is shown to be catalyzed by hydrogen ions, the effect of which is complicated by osmotic effects caused on the surface of the fibers.

Degradation of long chain molecules as a reverse polymerization process

H. H. G. Jellinek. *J. of Polymer Sci. 9,* 369-80 (1952).

Mathematical kinetic equations are derived, first for degradation of polymers as a reversal of polymerization processes and second, for degradation polymerization processes ultimately leading to equilibria between monomer and polymer.

Distribution of substituents in partially substituted carboxy-methylcelluloses

T. E. Timell. *Svensk Papper. 55,* 649-660 (1952).

A new method was developed for determining the number of primary hydroxyl groups in the 6-position in cellulose ethers, involving oxidation with periodic acid of the corresponding glucose mixture and estimation with dimedon of the formaldehyde formed by oxidation of the glycol group in the 5, 6-position. The number of mono-, di-, and trisubstituted anhydroglucose units was determined by selective extraction with various solvents of the corresponding methyl esters of the carboxymethylated glucoside mixture.